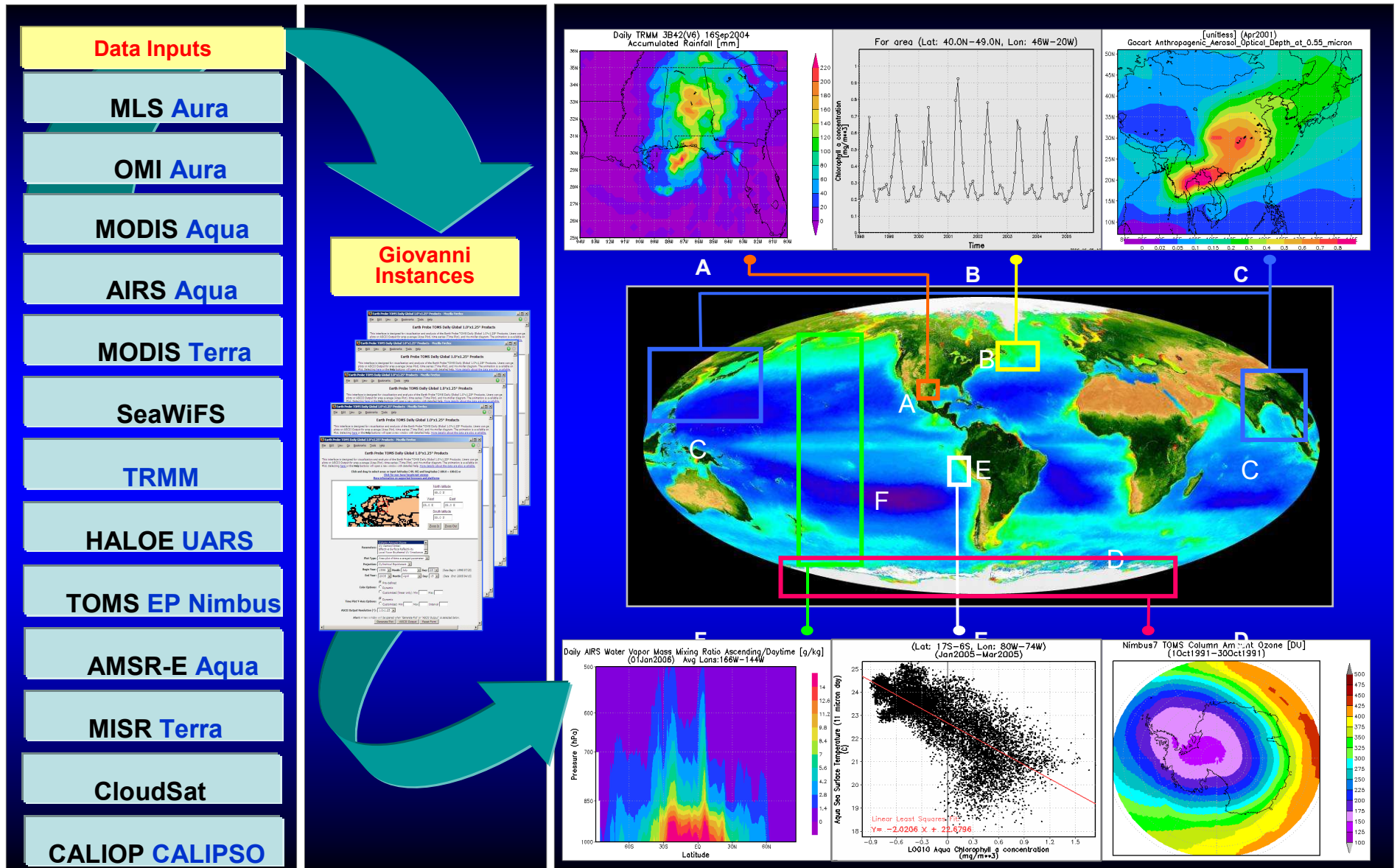


NO₂ and aerosols in Giovanni

Gregory Leptoukh, Steve Berrick

NASA Goddard Space Flight
Center

What is Giovanni?



GES-DISC Interactive Online Visualization and Analysis Infrastructure (Giovanni)

- With Giovanni and a few mouse clicks, one can easily obtain information on atmosphere state from around the world
- No need to learn data formats and to retrieve and process data
- Assess various phenomena interactively
- Try various combinations of parameters measured by different instruments
- All the statistical analysis is done via a regular web browser

<http://giovanni.gsfc.nasa.gov/>

Caution: *Giovanni is an exploration tool*

Giovanni capabilities

Basic (one-parameter):

- **Area plot** – averaged or accumulated over any data period for any rectangular area (various map projections)
- **Time plot** – time series averaged over any rectangular area
- **Hovmoller plots** – longitude-time or latitude-time cross sections
- **ASCII output** – for all plot types (can be used with GIS apps)
- **Image animation** – for area plot
- **Vertical profiles**
- **Vertical cross-sections, zonal means**

Beyond basics:

- **Area plot** - geographical intercomparison between two parameters
- **Time plot** - an X-Y time series plot of several parameters
- **Scatter plot of parameters in selected area and time period**
- **Scatter plot of area averaged parameters** - regional (i.e., spatially averaged) relationship between two parameters
- **Temporal correlation map** - relationship between two parameters at each grid point in the selected spatial area
- **Temporal correlation of area averaged parameters** - a single value of the correlation coefficient of a pair of selected parameters
- **Difference plots**
- **Anomaly plots**
- **Acquiring parameter and spatial subsets** in a batch mode through Giovanni

Giovanni - Mozilla Firefox

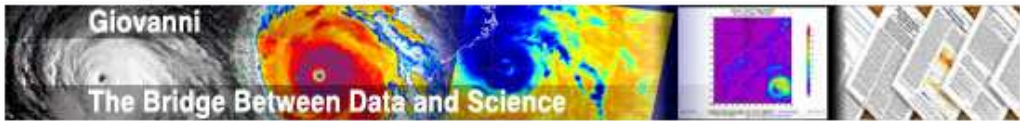
File Edit View Go Bookmarks Tools Help

[http://disc.gsfc.nasa.gov/techlab/giovanni/](#)
Go

+ ABOUT NASA
+ NEWS & EVENTS
+ MULTIMEDIA
+ MISSIONS
+ POPULAR TOPICS
+ MyNASA

+ Tech Lab Home
+ GES DISC Home
Giovanni
+ OVERVIEW

SEARCH DISC
 + GO
+ ADVANCED SEARCH



GIOVANNI
Current Giovanni Interfaces
These Giovanni interfaces are operational:

| | |
|--------------------------------------------------------|-------------------------------|
| Agricultural Online Visualization and Analysis System | View snapshot |
| AIRS Online Visualization and Analysis System | View snapshot |
| Aura MLS Online Visualization and Analysis System | View snapshot |
| MODIS Online Visualization and Analysis System (MOVAS) | View snapshot |
| Ocean Color Time-Series Project | View snapshot |
| OMI Online Visualization and Analysis System | View snapshot |
| TOMS Online Visualization and Analysis System | View snapshot |
| TRMM Online Visualization and Analysis System (TOVAS) | View snapshot |
| UARS HALOE Online Visualization and Analysis System | View snapshot |

For full descriptions, features, and list of parameters available in each of our Giovanni interfaces, please check our [Giovanni Interface Description Web page](#).

What is Giovanni?

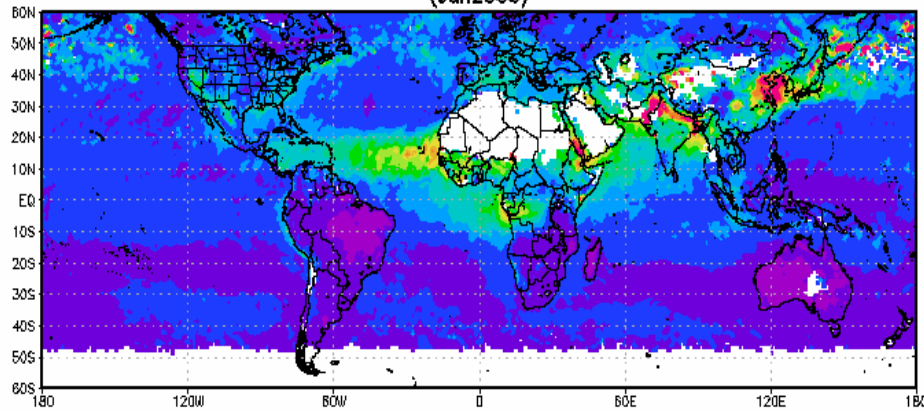
The GES-DISC Interactive Online Visualization and Analysis Infrastructure (Giovanni) is the underlying infrastructure for a growing family of Web interfaces that allows users to analyze gridded data interactively online without having to download any data. Through Giovanni, users are invited to discover and explore our data using sophisticated analyses and visualizations.

In the future, there will be more instances of Giovanni available and we

GIOVANNI NEWS
04.18.2006 OMI Level 2G now available in Giovanni
The OMI Level 2G total column ozone gridded product is now available in OMI Giovanni. This OMI Giovanni (now separated from TOMS Giovanni) allows users to interactively filter by quality flag and viewing zenith angle.
[+ Explore OMI Giovanni](#)
04.05.2006 GPCP Data now available in TOVAS Giovanni
Global Precipitation (GPCP, 1979 - 2005) data are available through TOVAS Giovanni. In addition, TRMM V5 data products have been replaced by TRMM V6. Also, new options have been made available on resultant image page, including "Unit options (mm or inch)" and "Nonlinear color scale".
[+ Explore TOVAS](#)
03.31.2006 New MODIS Aqua SST available in Giovanni
A new version of MODIS Aqua Sea Surface Temperature (SST) has been added to the Ocean Color Time-Series Project Giovanni subsequent to the full dataset reprocessing by the OBPG. The data product used in

AOT for June 2006

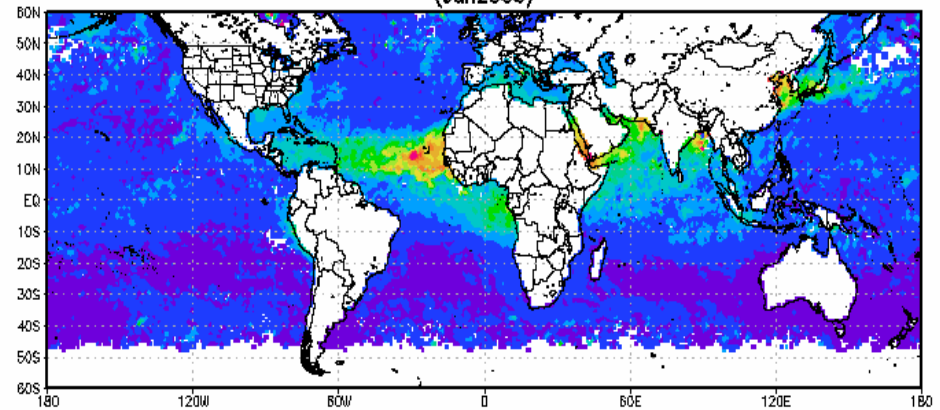
MOD08_M3.005 Aerosol Optical Depth at 550 nm [unitless]
(Jun2006)



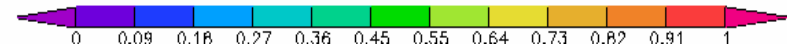
Terra MODIS



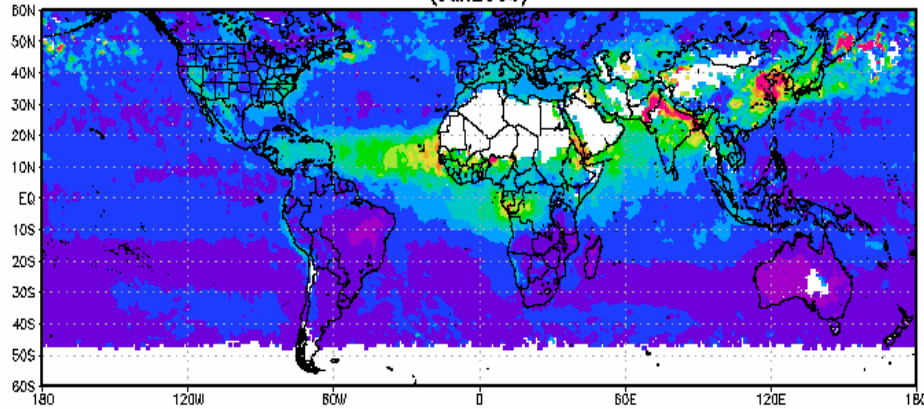
PARASOL_M3.001 AOT at 550 nm [unitless]
(Jun2006)



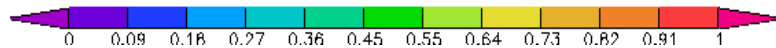
Parasol POLDER



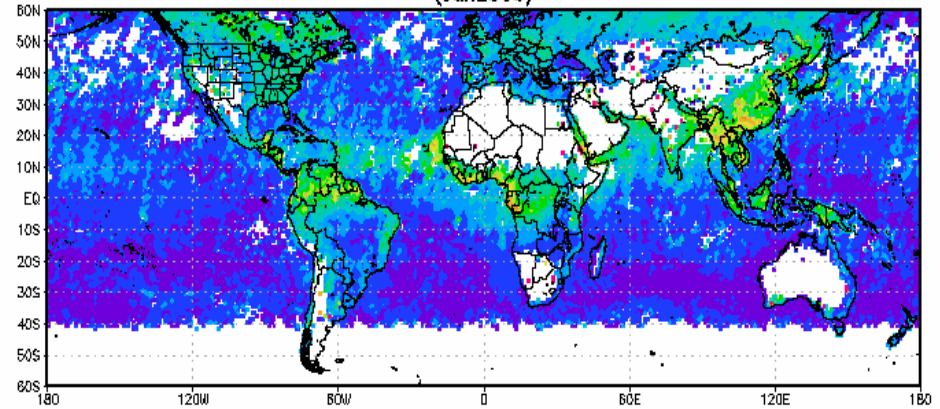
MYD08_M3.005 Aerosol Optical Depth at 550 nm [unitless]
(Jun2006)



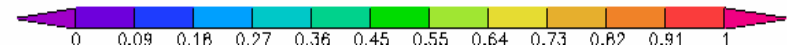
Aqua MODIS



MER_T550.004 AOT 550nm [none]
(Jun2006)

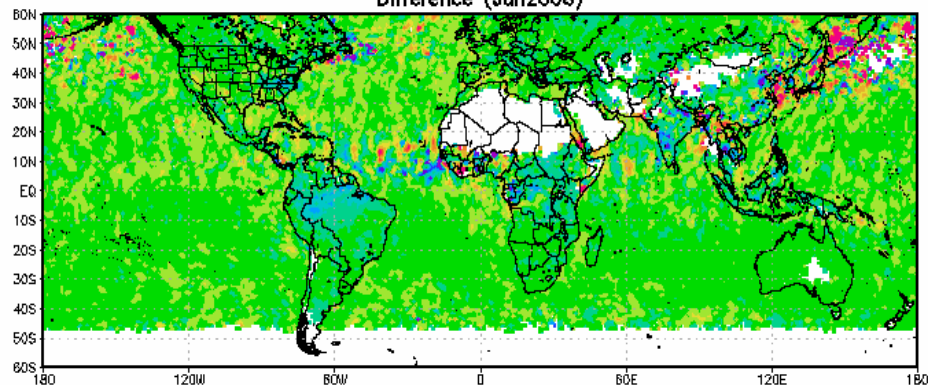


Envisat MERIS

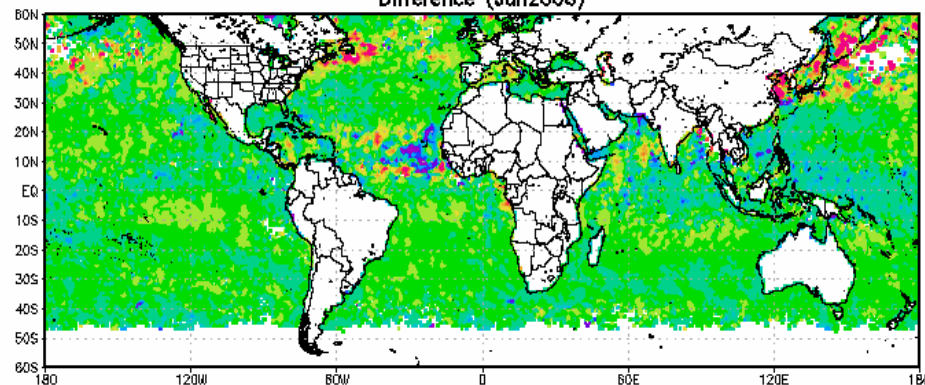


AOT Differences for June 2006

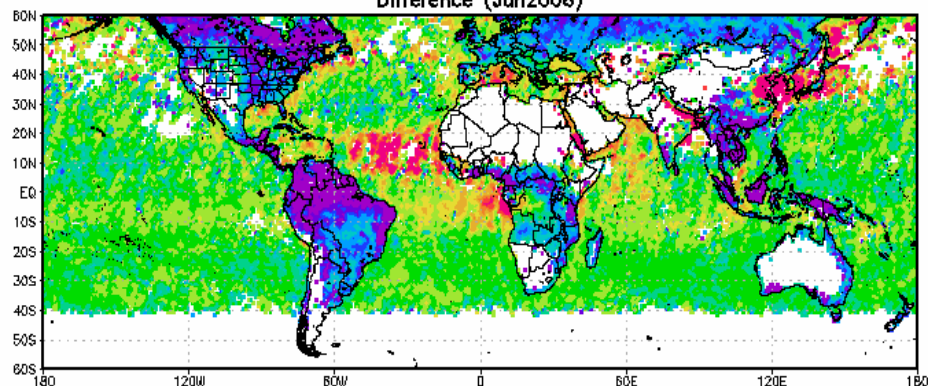
MOD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
MYD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
Difference (Jun2006)



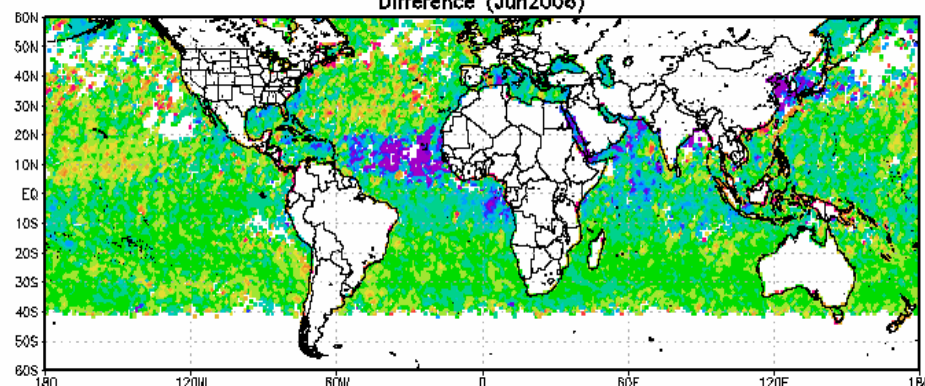
MYD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
PARASOL M3.001 AOT at 550 nm (unitless)
Difference (Jun2006)



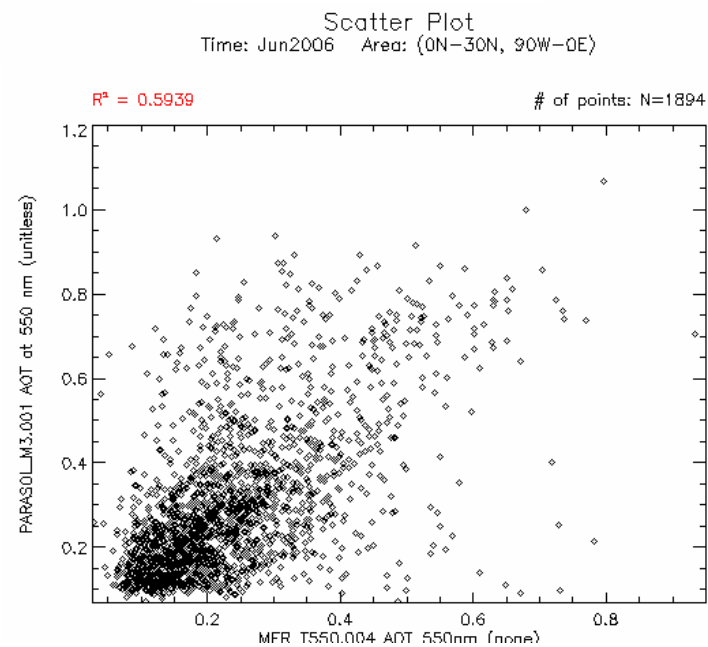
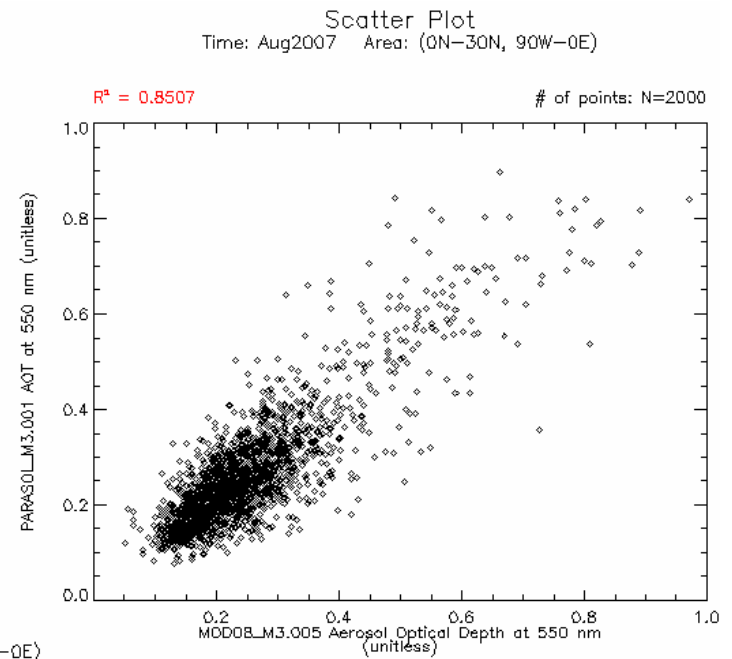
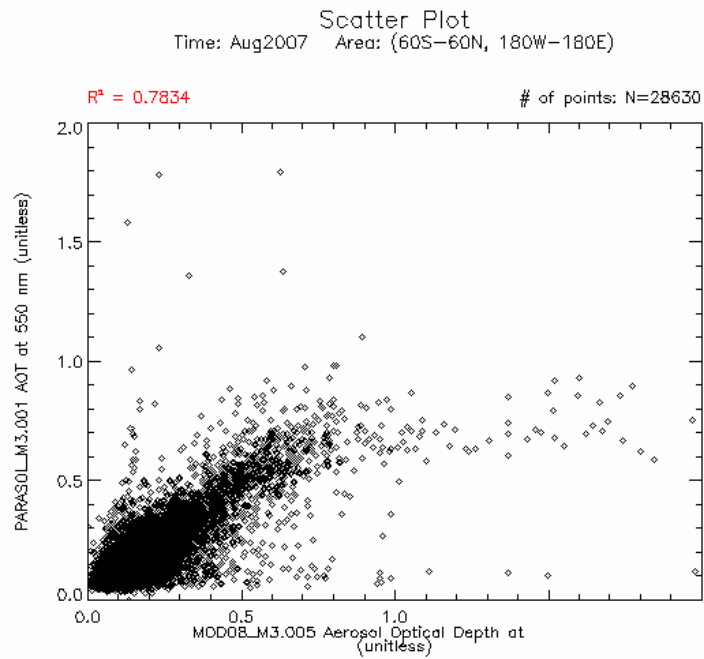
MOD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
MER T550.004 AOT 550nm (none)
Difference (Jun2006)



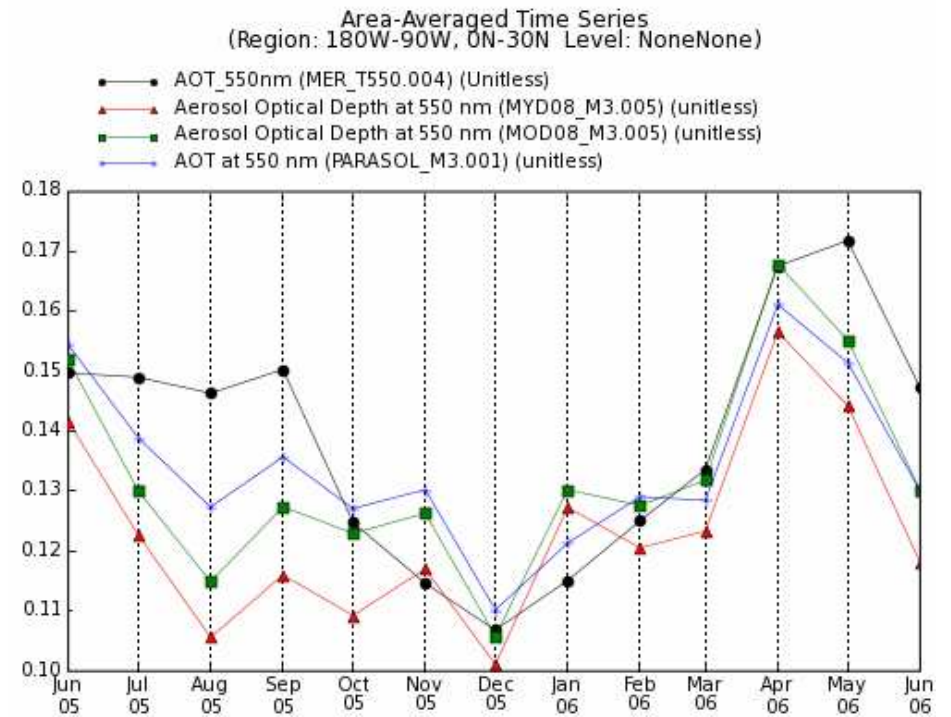
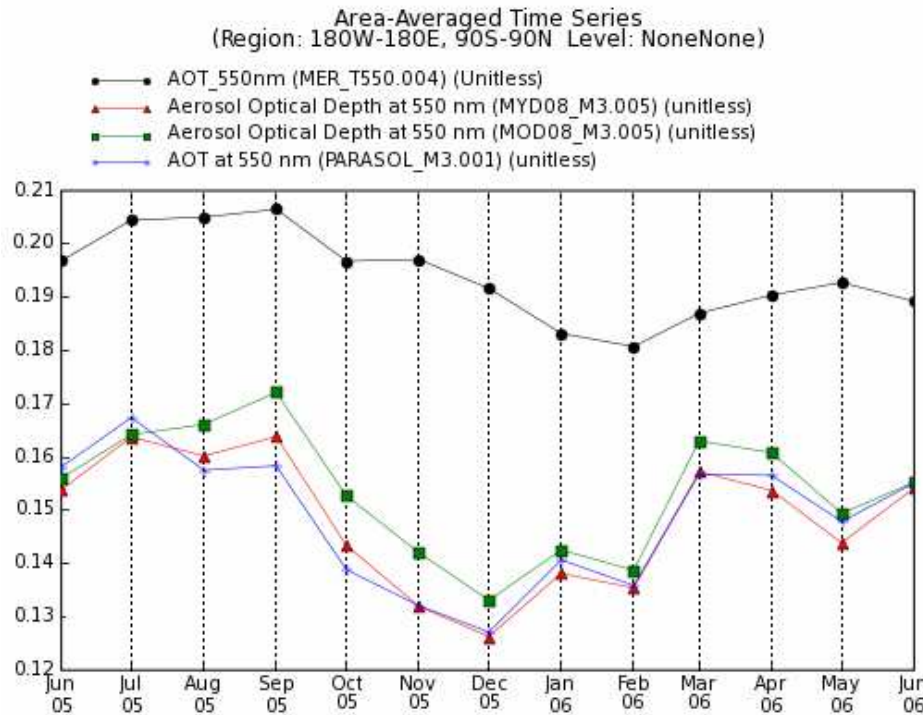
MER T550.004 AOT 550nm (none)
PARASOL M3.001 AOT at 550 nm (unitless)
Difference (Jun2006)



Scatter plots

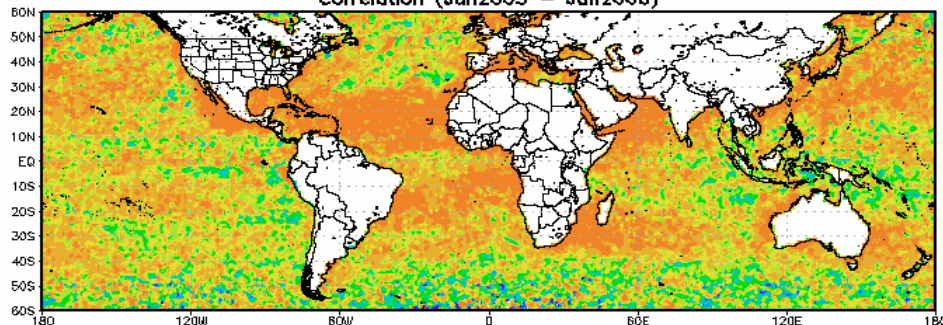


Time series



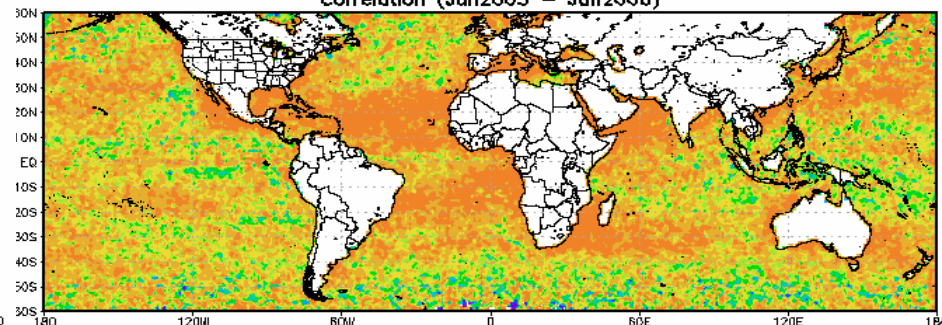
Maps of temporal correlations (June 2005 – June 2006)

MOD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
PARASOL M3.001 AOT at 550 nm (unitless)
Correlation (Jun2005 – Jun2006)



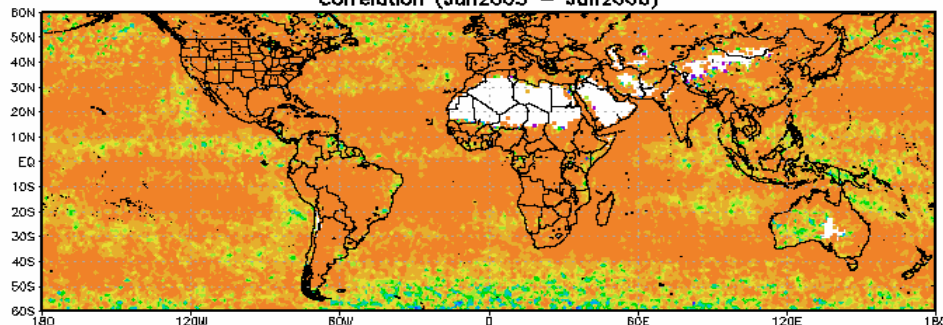
Terra MODIS - POLDER

MYD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
PARASOL M3.001 AOT at 550 nm (unitless)
Correlation (Jun2005 – Jun2006)



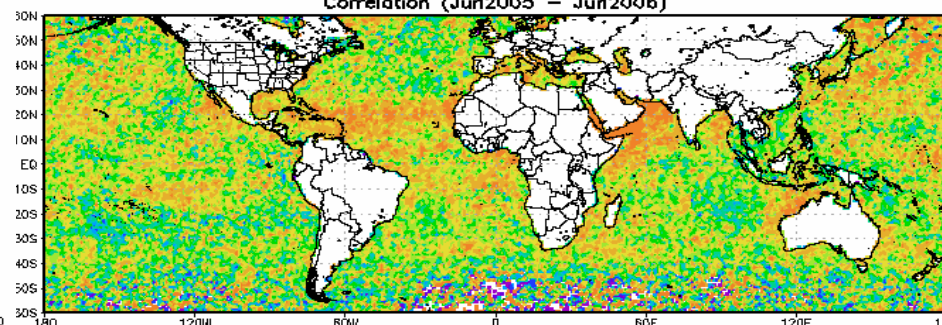
Aqua MODIS - POLDER

MOD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
MYD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
Correlation (Jun2005 – Jun2006)



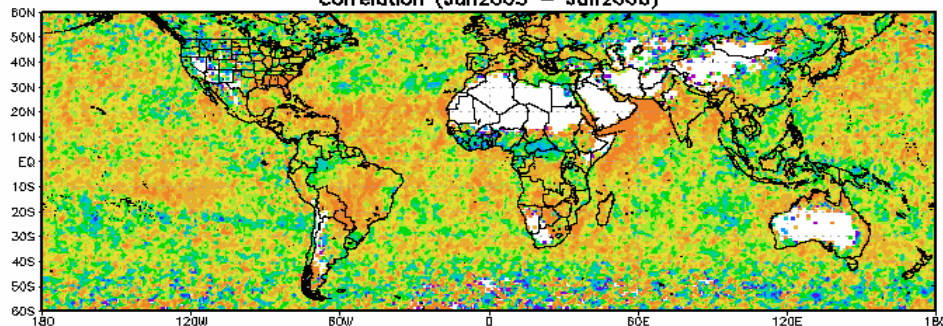
Terra MODIS – Aqua MODIS

MER T550.004 AOT 550nm (none)
PARASOL M3.001 AOT at 550 nm (unitless)
Correlation (Jun2005 – Jun2006)



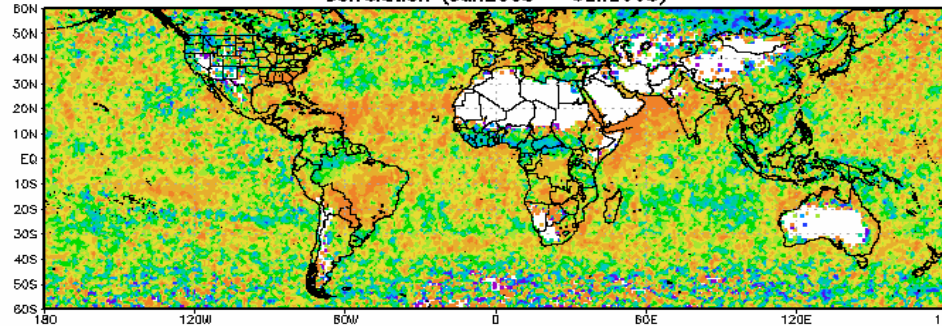
MERIS – POLDER

MOD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
MER T550.004 AOT 550nm (none)
Correlation (Jun2005 – Jun2006)

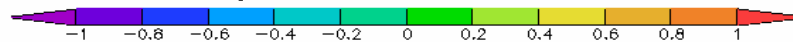


Terra MODIS – MERIS

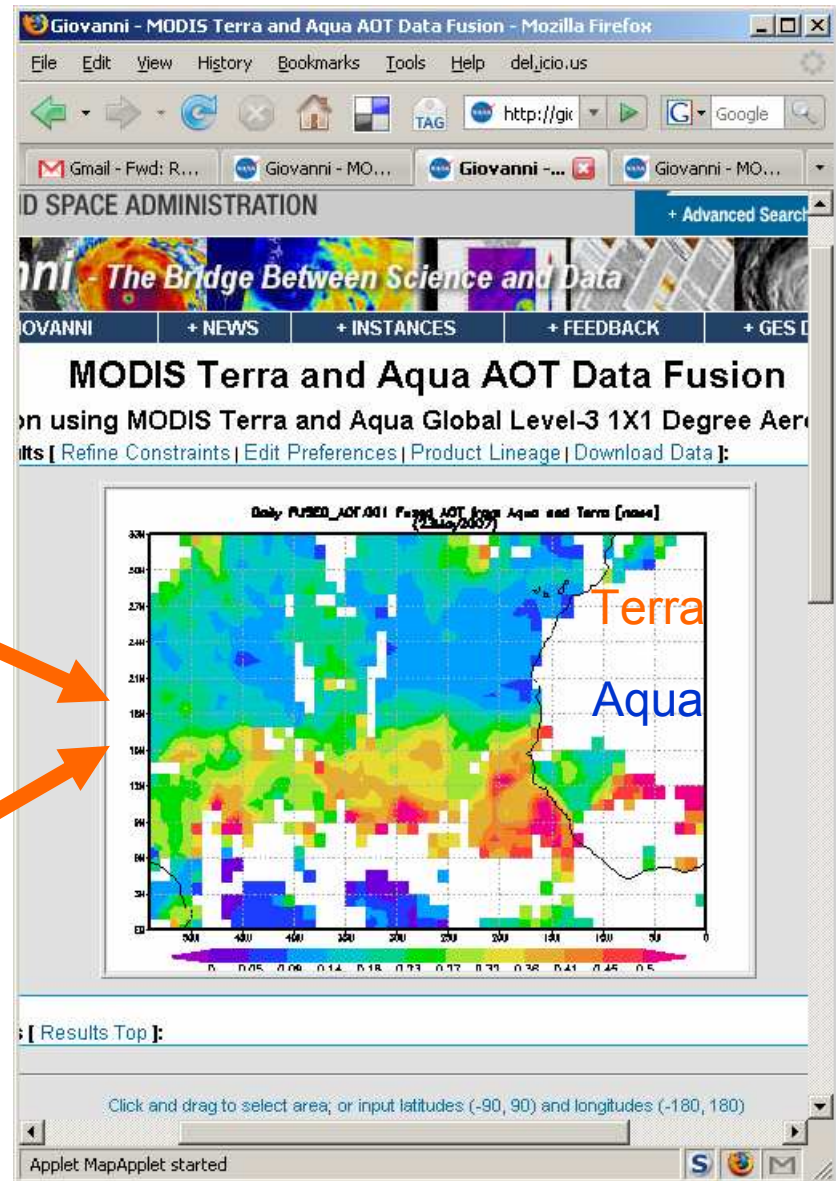
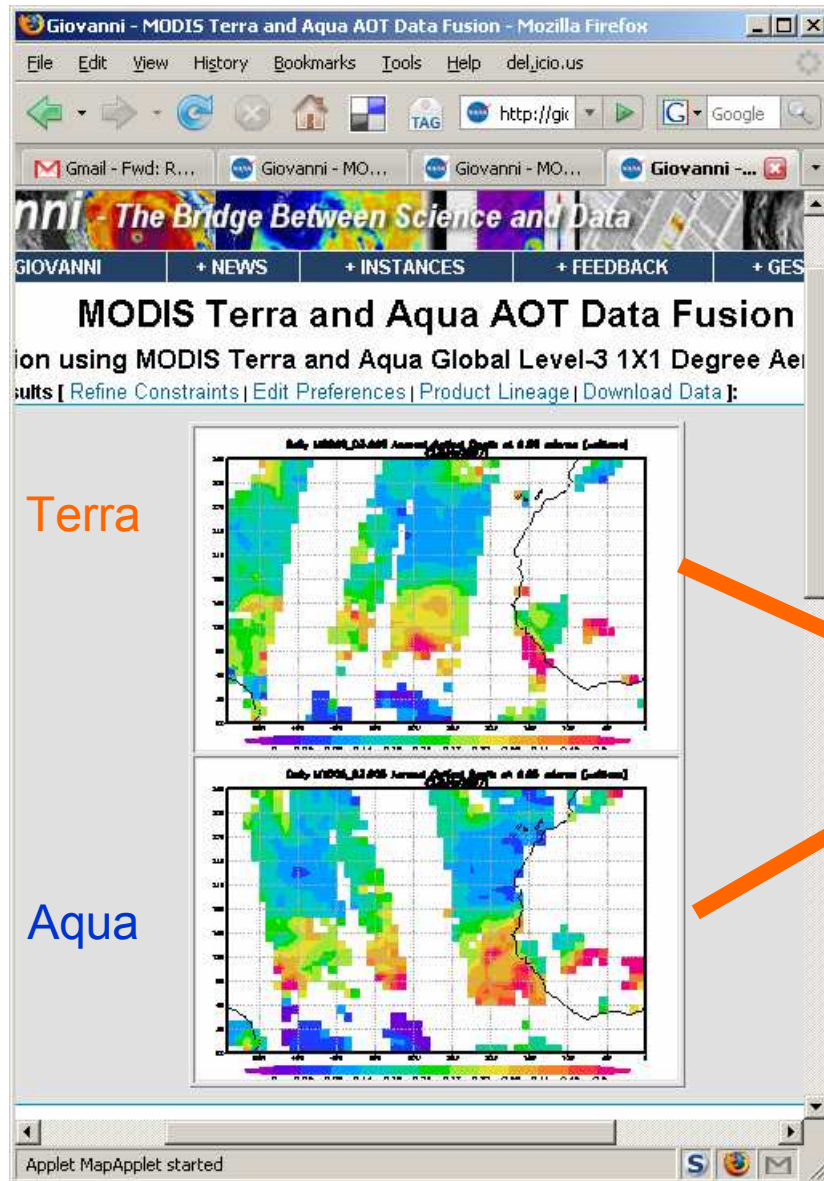
MYD08 M3.005 Aerosol Optical Depth at 550 nm (unitless)
MER T550.004 AOT 550nm (none)
Correlation (Jun2005 – Jun2006)



Aqua MODIS – MERIS

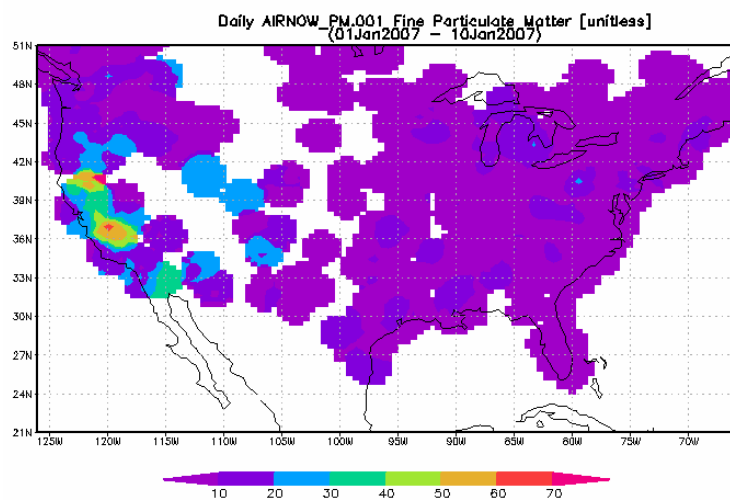


Data Fusion in Giovanni (prototype)

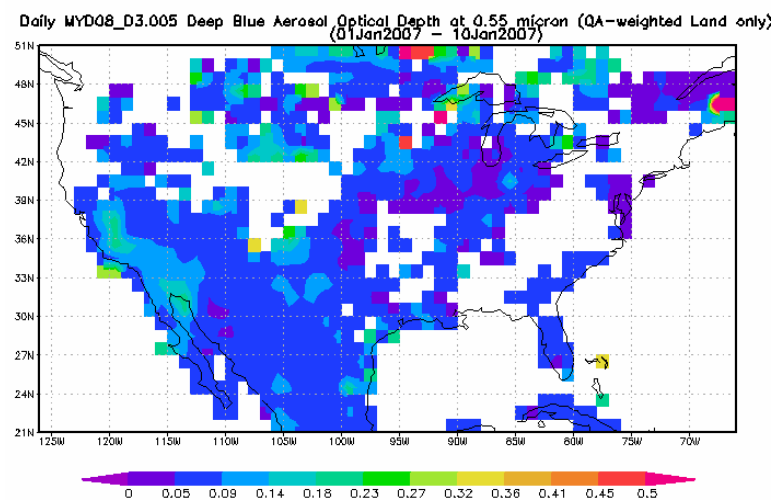


Dust event, May 23, 2007

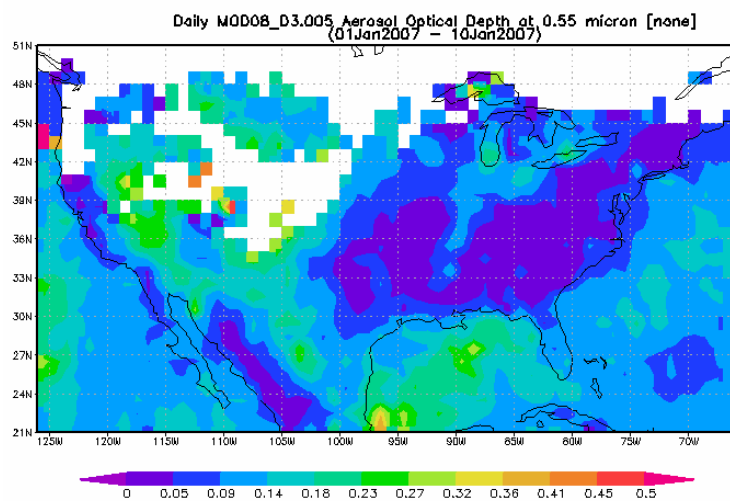
Prototyping PM25 data in Giovanni



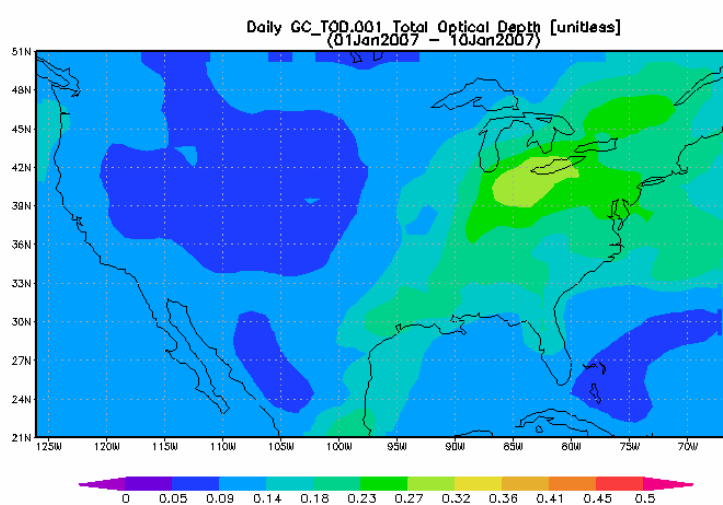
PM2.5 (EPA → DataFed → Giovanni)



Deep Blue MODIS Aerosol Optical Depth



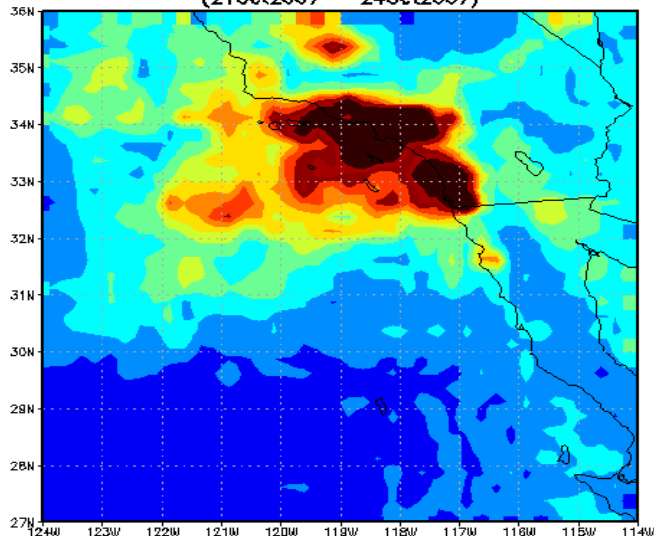
The standard MODIS AOT



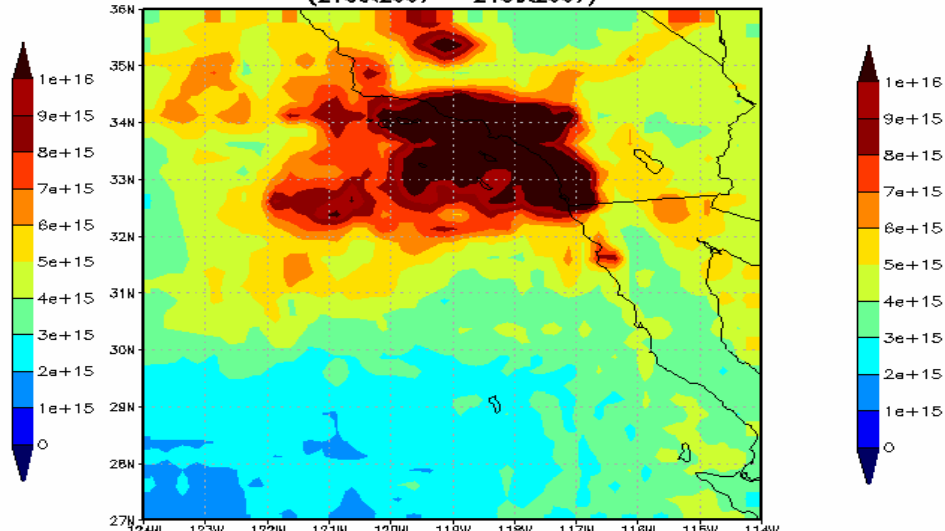
GOCART AOT (Goddard → DataFed → Giovanni)

California fires seen by OMI

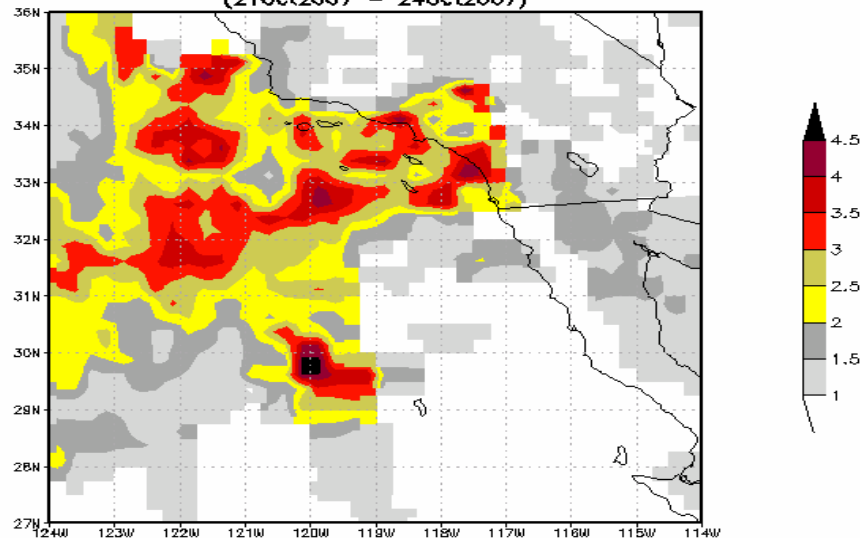
OMNO2E.002 NO2 Tropospheric Vertical Column Density [molec/cm²]
(21Oct2007 - 24Oct2007)



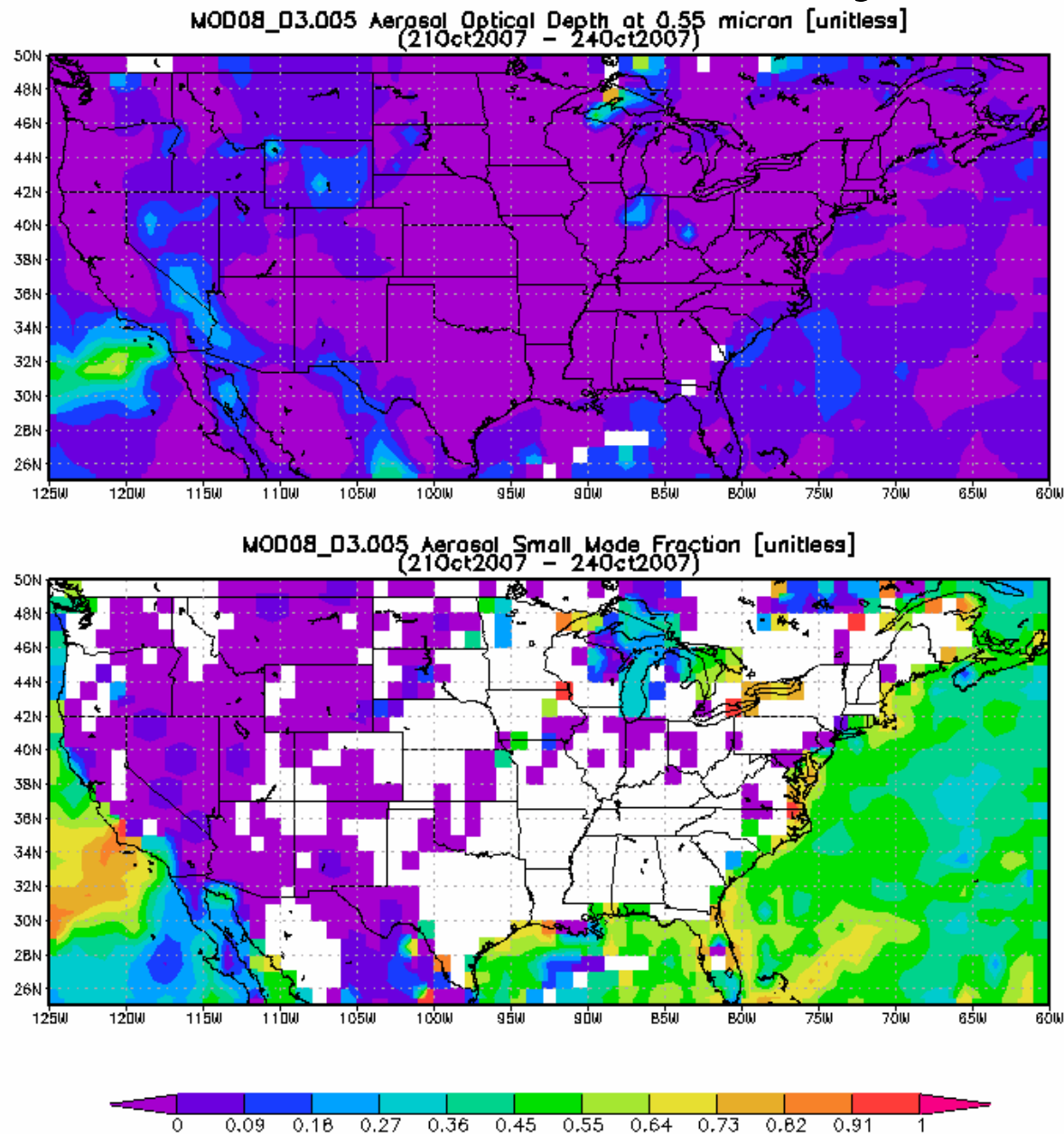
OMNO2E.002 NO2 Total Vertical Column Density [molec/cm²]
(21Oct2007 - 24Oct2007)



OMTO3E.002 UV Aerosol Index [unitless]
(21Oct2007 - 24Oct2007)



California fires seen by MODIS



PM2.5 from AirNow in Giovanni

